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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/881,584 | 06/14/2001 | Alden R. Wilner | 01-076 | 5870 |

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INTELLECTUAL PROPERTY LAW DEPARTMENT
LSI LOGIC CORPORATION
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1551 McCARTHY BLVD.
MILPITAS, CA 95035

EXAMINER

BADERMAN, SCOTT T

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

2113

DATE MAILED: 02/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

09/881,584

Applicant(s)

WILNER, ALDEN R.

Examiner

Scott T Baderman

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 January 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5,8-13 and 15-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5,8-13 and 15-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 13 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Claim 13 does not further limit the scope of claim 8.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 8-13 and 15-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuchs et al. (6,141,770).

As in claims 1 and 8, Fuchs discloses a method and system for verifying data that comprises writing an item of data to a first data storage device (which is considered a first item

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of data), a second data storage device (which is considered a second item of data) and a third data storage device (which is considered a third item of data) simultaneously (i.e., data read from the memory and system I/O bus is supplied (written) to all processor chips simultaneously, and then the output for each CPU is compared) (Figure 3, column 7: lines 1-25, column 10: lines 28-46), reading a first item of data from a first CPU (inherently from a storage device), a second item of data from a second CPU (inherently from a storage device), and a third item of data from a third CPU (inherently from a storage device), wherein the first, second and third items of data are compared to determine if they match with one another (Figures 3 and 9, Abstract, column 7: lines 18-30, column 10: lines 28-62, column 16: lines 31-58). However, Fuchs does not specifically disclose first comparing the first and second items of data, and if they do not match, reading and comparing the third item of data to one of the first and second items of data. Fuchs also does not clearly disclose that the first, second and third storage devices are included in a RAID system.

It would have been obvious to a person skilled in the art at the time the invention was made to include the process of first comparing the first and second items of data, and if they do not match, reading and comparing the third item of data to one of the first and second items of data, into the method and system taught by Fuchs above. This would have been obvious because Fuchs clearly teaches that the reason for comparing the three CPUs above is for determining if at least two of the three agree with one another (column 15: lines 19-23). A person skilled in the art would have understood that the process taught by Fuchs above (i.e., comparing the data at the same time) and the process of first comparing first and second items of data, and if they do not match, reading and comparing a third item of data to one of the first and second items of data,

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are the same thing since the result is that both are interested in determining if two of the three match, and therefore would have been led to incorporate any method of comparing the data (i.e., at the same time or individually) so long as the same result was reached.

It would have also been obvious to a person skilled in the art at the time the invention was made to implement the redundant voting process taught by Fuchs into a RAID system such that the outputs of first, second and third storage devices in a RAID system would be compared to one another in order to determine if errors exists (as in column 7: lines 18-49). This would have been obvious because Fuchs clearly teaches that when high energy particles and gamma rays penetrate a semiconductor device, they deposit charge within the computer circuit and create transients and/or noise (column 1: lines 51-53). Fuchs further teaches that this can upset the memory circuits and induce a "latchup" of circuits on the chip (column 1: lines 53-55). A person skilled in the art would have understood that these memory/chip circuits would also include circuits within a RAID system, and that the redundant voting process taught by Fuchs above could also be used in a RAID system to determine if the memory circuits therein contain errors.

As in claims 2 and 9, Fuchs discloses that if any two of the first, second and third items of data match (i.e., a majority), then the CPUs are to continue to operate without interruption (i.e., transferring a matching item of data) (Abstract, column 7: lines 25-29, column 10: lines 41-46).

As in claims 3 and 10, Fuchs discloses that if only one of the CPUs disagrees (second item of data), then that CPU can be resynchronized (updated) to agree with the other two CPUs

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(first and third items of data) (column 7: lines 24-43, column 11: lines 1-4, column 15: lines 44-50).

As in claims 4 and 11, Fuchs discloses wherein the CPU (second item of data) that is in disagreement is updated to match at least one of the other two CPUs (first and second items of data) (column 15: lines 44-56).

As in claims 5 and 12, Fuchs discloses that if none of the first, second and third items of data match, an error is reported (column 15: lines 19-23).

As in claim 13, Fuchs discloses sending an initial item (from the system memory) of data by a controller to arrive at the first CPU (first item of data, inherently stored), second CPU (second item of data, inherently stored) and third CPU (third item of data, inherently stored) (Figure 3, 28-46).

As in claim 15, the Applicant is directed to claims 1 and 3 above.

As in claim 16, the Applicant is directed to claim 2 above.

As in claim 17, the Applicant is directed to claim 4 above.

As in claim 18, the Applicant is directed to claim 5 above.

Conclusion


4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

See Form PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott T Baderman whose telephone number is (571) 272-3644. The examiner can normally be reached on Monday-Friday, 6:45 AM-4:15 PM, first Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Beausoliel can be reached on (571) 272-3645. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Scott T Baderman
Primary Examiner
Art Unit 2113

STB